

REMARKS

Claims 1-20 were pending in the present application. Claims 1, 13, 16, 18 and 19 have been amended to clarify the invention. Dependent claims 21-24 have been added, and are believed to be patentable for the same reasons as set forth below with respect to claim 1.

Allowable Subject Matter

The Examiner is thanked for his indication that claims 3, 4, 15, 16 and 19 contain allowable subject matter.

Claim Objections

Claims 3, 4, 15, 16 and 19 stand objected-to as depending on rejected base claims. In view of the comments below overcoming the rejections of the base claims, it is respectfully submitted that these objections should be withdrawn.

Claim Rejections

Claims 1, 2, 6-9, 13, 14 and 18 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,621,895 to Weis et al. (hereinafter "Weis"). Claims 1, 5-7, 10, 13, 17, 18 and 20 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,032,261 to Hulyalkar (hereinafter "Hulyalkar"). Claims 11 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hulyalkar in view of "Application Critical Parameters for Rubidium Standards" by Weidemann (hereinafter "Weidemann"). Applicants respectfully traverse these rejections for at least the following reasons.

Weis et al. disclose a frame-structured bus system having a plurality of stations 10-60 connected to a central star coupler 1 (Col. 5, lines 23-33.), and addresses a different problem than that of the present invention. In the system disclosed by Weis et al., nodes have to deliver a packet in time such that the star coupler, once the packet has propagated to the star coupler, can insert it into the frame precisely on time. In particular, Weis discloses a synchronization procedure between stations 10-60 that allows “the messages from all stations 10-60 of the local operation network [to be] combined in the data frame 3,” so that their data “arrive at the central star coupler [1] precisely on time...”. (Col. 7, lines 1-14.) This frame is distributed to all nodes that will hence get a common synchronization signal. The system of Weis et al. is only capable of synchronizing nodes to a frequency/event that matches the packet distribution frequency or to a frequency that is an integer multiple of the packet distribution frequency.

The method and system of the present invention, on the other hand, distributes additional information along with a synchronization event -- the lower order part of a timer. In IEEE1394 networks, for example, this synchronization event could be the Cycle Start Packet (CSP) and the lower order part of the timer could be the cycle_time. Further detail is set forth in applicant's specification at, e.g., page 4, line 18 to page 5, line 17. This low-order counter allows the synchronization of nodes to events that are less frequent than the occurrence of the Start-Of-Frame (SOF). It should be noted that the disclosed and claimed invention is not limited to IEEE1394 networks or any particular network topology, including that disclosed by Weis et al.

Using the system and method of the present invention, two or more nodes can, e.g., recover a local sync signal that is half the frequency of the frame distribution rate. WEIS does not describe a method which allows the nodes to align the sync event to a specific frame start (SOF), i.e. a method wherein a first node may assert local sync every even frame while a second node may assert local sync every odd frame. Therefore, Weis et al. do not achieve local sync alignment.

Hulyalkar describes an IEEE1394 bus system which uses, for synchronization, a bus bridge having multiple portals. The disclosed system makes use of the low-order time (cycle_time) distributed along with the CSP for synchronization purposes.

However, the present invention adds another layer of synchronization by also distributing a high-order time in the network. This distribution of a high-order time allows the synchronization of nodes to even less frequent events than by using only the low-order time, as is taught by Hulyalkar.

Neither Weis et al. nor Hulyalkar teach or suggest, alone or in combination, applicant's claimed method for distributing a reference time in a network wherein a network-wide time signal is distributed in a network segment using a network-inherent synchronization event along with a low-order time, with a bridge synchronizing the network-inherent synchronization event between first and second bridge portals, and wherein a high-order time is distributed in the network. This language is positively recited in each of applicant's independent claims 1, 13 and 18. It should be noted with respect to Applicant's claim 18 that, while Weis discloses synchronization of stations 10-60 to prevent collisions of data received from the various

stations 10-60 (col. 8, line 34), Weis et al. do not teach or suggest stations 10-60 performing local timing control for a plurality of applications as recited in claim 18.

The Court of Appeals for the Federal Circuit has consistently held that “Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.” Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick, 221 USPQ 481, 485 (Fed. Cir. 1984). In view of the above cited structure positively recited and claimed in Applicants’ independent claims 1, 13 and 18, and not taught by either Weis et al. or Hulyalkar, it is respectfully submitted that the rejections of independent claims 1, 13 and 18 under 35 U.S.C. § 102 must be withdrawn. Dependent claims 2-12, 14-17, and 19-24 inherit the limitations of their respective independent claims and are patentable over Weis et al. and Hulyalkar for this same reason. It is further respectfully submitted that, because neither Weis, Hulyarkar, nor Weidemann, alone or in combination, teach or suggest the inventions of dependent claims 11 and 12, the rejection of those dependent claims under 35 U.S.C. § 103 should likewise be withdrawn.

Serial No. 09/785,598
Atty. Docket No. 40357.010100
Response to non-final Office Action mailed July 19, 2004

CONCLUSION

Applicants respectfully submit that all of the stated grounds of rejection have been properly traversed or rendered moot and believe that all pending claims 1-24 are allowable over the prior art of record. Thus, it is believed that the present application is in condition for allowance, and Notice to that effect is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of the application, he is courteously requested to contact Applicants' undersigned representative.

Date: January 19, 2005

Respectfully submitted,

By: 

Richard E. Kurtz, II
Registration No. 33936
Telephone No. (703) 749-1300
Facsimile No. (703) 749-1301

Correspondence Address
GREENBERG TRAURIG
1750 Tyson's Boulevard
Suite 1200
McLean, VA 22102